What is Claimed is:

1. A method for synchronizing frames by using pilot patterns in a compressed mode, comprising the steps of:

(a) puncturing pilot bit sequences of frame synchronization words to be transmitted over one frame as many as desired number of slots;

(b) receiving a series of codes of the punctured frame synchronization words;

(c) restoring the frame synchronization words in frames by using correlation of the received series of codes;

(d) attaining a frame synchronization with respect to a channel by using correlation of the restored frame synchronization words.

2. A method as claimed in claim 1, wherein the step (c) includes the steps of;

classifying a plurality of codes into classes each with a fixed number of codes, and

restoring bits of the codes not transmitted owing to the puncturing by using a relation $C_{i,j} = - C_{i+1(j+7)\text{mod } 15}$ of a code pair in each of the classes, wherein $C_{i,j}$ represents a (j)th slot bit of a pilot bit pattern C_i, i = 1, 3, 5, 7, and j = 0 ~ 14.

3. A method as claimed in claim 1, wherein the step (c) includes the steps of;

classifying a plurality of codes into a number of classes, and

restoring bits of the codes not transmitted owing to the puncturing by using a relation $C_{i+1,j} = - C_{i,(j+8)\bmod 15}$ of a code pair in each of the classes, wherein $C_{i,j}$ represents a (j)th slot bit of a pilot bit pattern C_i, i = 1, 3, 5, 7, and j = 0 ~ 14.

4. A method as claimed in claim 1, wherein the step (d) includes the steps of;

classifying the restored frame synchronization words into a number of classes of a frame synchronization words pair, and

implementing frame synchronization of the channel by using at least one of cross correlation functions of the frame synchronization word pair in each of the classes.

5. A method as claimed in claim 4, wherein, if the restored frame synchronization words are eight, which can be classified into the following four classes,

E = {C1, C2}, F = {C3, C4}, G = {C5, C6}, H = {C7, C8},

each of code pairs in each of the classes can be expressed in a cross correlation function as the following equations.

$$R_{i,j}(\tau) = \begin{cases} -15, & \tau = 7 \\ 1, & \tau \neq 7 \end{cases}$$

$$R_{j,i}(\tau + 1) = \begin{cases} -15, & \tau = 7 \\ 1, & \tau \neq 7 \end{cases}$$

Where i, j = 1, 2, -----, 8.

6. A method as claimed in claim 1, wherein the step (d) is implemented by at least one of auto-correlation function of the frame synchronization words.

7. A method as claimed in claim 6, wherein, if the restored frame synchronization words are eight, which can be classified into the following four classes,

E = {C1, C2}, F = {C3, C4}, G = {C5, C6}, H = {C7, C8},

each of code pairs in each of the classes can be expressed in an auto-correlation function as the following equation.

$$R_i(\tau) = \begin{cases} 15, & \tau = 0 \\ -1, & \tau \neq 0 \end{cases}, \qquad i, j = 1, 2, \text{-----}, 8.$$

8. A method as claimed in claim 1, wherein the step (d) is implemented by using both the auto-correlation and cross correlation of the restored frame synchronization words.

9. A method as claimed in claim 8, wherein the step (d) includes the steps of;

(a) auto-correlating the restored frame synchronization words which are pilot bit sequences, to provide a final auto-correlation result,

(b) cross correlating the restored frame synchronization words, to provide a final cross correlating result,

(c) negatively summing the auto-correlation result and the cross correlation result,

(d) comparing the summed correlation results to a preset threshold value β,

(e) determining a frame synchronization success for the received channel according to a result of the comparison, and

(f) reporting the result of the determination to an upper layer.

10. A method as claimed in claim 9, wherein, in the cross correlating step, the restored frame synchronization words are classed into a number of classes corresponding to frame synchronization word pairs, and one word of the frame synchronization word pair in one class is the other word being cyclic shifted by 7 bits and inverted.

11. A method as claimed in claim 9, wherein the step (c) includes the steps of;

delaying the auto-correlation result for a certain slot time period while the cross correlation is carried out, and

negatively summing the auto-correlation result and the cross correlation result.

12. A method as claimed in claim 9, wherein the threshold value β is set to a value equal to '0' or greater than '0' depending on an SNR ratio.

13. A method as claimed in claim 9, wherein the step (a) includes the steps of;

classifying the restored frame synchronization words into a number of classes corresponding to frame synchronization word pairs, and

correlating a first frame synchronization word and a second frame synchronization word in each class, to provide a first auto-correlation result and a second auto-correlation result, and

summing the first auto-correlation result and the second auto-correlation result, to provide the final auto-correlation result.

14. A method as claimed in claim 9, wherein the step (b) includes the steps of;

classifying the restored frame synchronization words into a number of classes corresponding to frame synchronization word pairs, and

cross correlating a second frame synchronization word with respect to a first frame synchronization word in each class, to obtain a first cross correlation result, and cross correlating the first frame synchronization word with respect to the second frame synchronization word in each class, to obtain a second cross correlation result, and

summing the first cross correlation result and the second cross correlation result, to obtain a final cross correlation result.